

New product

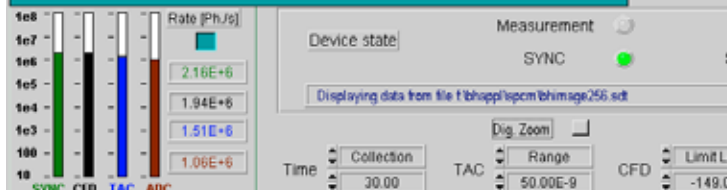
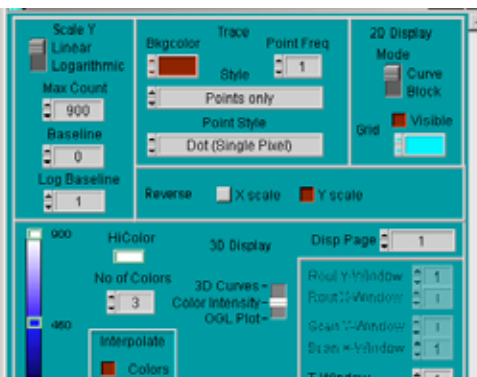
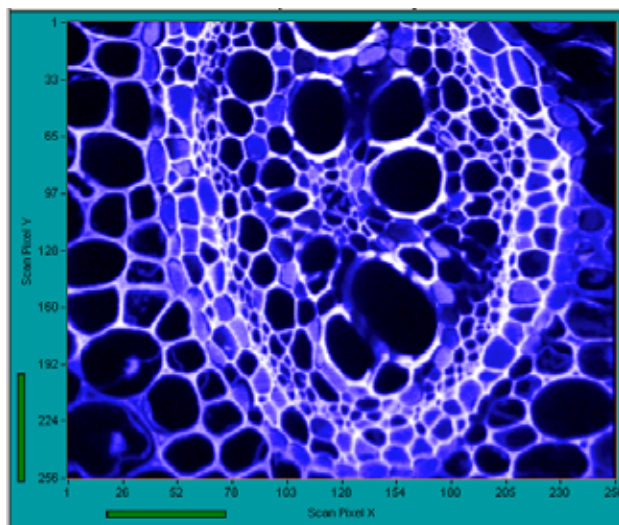
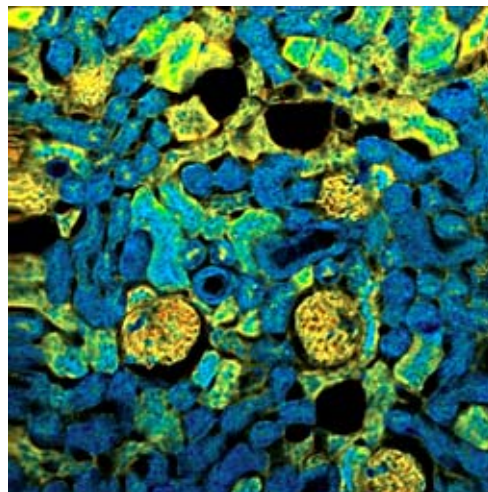
The TCSPC Imaging Package

SPC-144

Four Channel Time-Correlated Single Photon Counting FLIM Module for Laser Scanning Microscopes

Four parallel TCSPC imaging channels
Picosecond resolution
Ultra-high sensitivity
Multi-detector capability in all four channels
High-speed on-board data acquisition
Works at any scanning speed of CLSMs or MPLSMs
Time channel width down to 813 fs
Lifetime image size up to 1024 x 1024 pixels
Steady-state image size up to 2048 x 2048 pixels
Electrical time resolution down to 8 ps fwhm / 4 ps rms
Reversed start/stop: Laser repetition rates up to 150 MHz
Total useful count rate up to 16 MHz
Total saturated count rate 32 MHz

Multi-wavelength picosecond lifetime imaging
FRET imaging
High-resolution steady state imaging
Single-point time-lapse lifetime analysis



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Covered by patents DE 43 39 784 and DE 43 39 787

SPC-144

Photon Channels

Principle	Constant Fraction Discriminator (CFD)
Time Resolution (FWHM / RMS, electr.)	8 ps / 5 ps
Opt. Input Voltage Range	- 50 mV to - 1 V
Min. Input Pulse Width	400 ps
Lower Threshold	- 20 mV to - 500 mV
Upper Threshold	-
Zero Cross Adjust	- 100 mV to + 100 mV

Synchronisation Channels

Principle	Constant Fraction Discriminator (CFD)
Opt. Input Voltage Range	- 50 mV to - 1 V
Min. Input Pulse Width	400 ps
Threshold	- 20 mV to -500 mV
Frequency Range	0 to 200 MHz
Frequency Divider	1-2-4
Zero Cross Adjust	-100 mV to + 100 mV

Time-to-Amplitude Converters / ADCs

Principle	Ramp Generator / Biased Amplifier
TAC Range	50 ns to 2 us
Biased Amplifier Gain	1 to 15
Biased Amplifier Offset	0 to 100% of TAC Range
Time Range incl. Biased Amplifier	3.3 ns to 2 us
min. Time / Channel	813 fs
ADC Principle	50 ns Flash ADC with Error Correction
Diff. Nonlinearity	< 0.5% rms, typ. <1% peak-peak

Data Acquisition

Method	on-board multi-dimensional histogramming process						
Saturated Count Rate, per TCSPC channel	8 MHz						
Useful count rate, per TCSPC channel	4 MHz						
Dead Time	125ns, independent of computer speed						
Channels / Curve per TCSPC channel	4096	1024	256	64	16	4	1
max. Scanning Area per TCSPC channel	16x16	64x64	128 x 128	256x256	512x512	1024x1024	2048x2048
max. Counts / Time Channel	2 ¹⁶ -1						
Overflow Control	none / stop / repeat and correct						
Collection Time	0.1 us to 10000 s						
Display Interval Time	10ms to 1000 s						
Repeat Time	0.1 us to 1000 s						
Sequential recording	Programmable Hardware Sequencer						
Synchronisation with scanning	pixel, line and frame clocks from scanning microscope						
Count Enable Control	1 bit TTL						
Experiment Trigger	TTL						

Operation Environment

Computer System	PC Pentium
Bus Connectors	PCI
Used PCI Slots	4
Total power Consumption	approx. 60 W from +5V, 0.7 W from +12V
Dimensions	225 mm x 125 mm x 85 mm

Related Products and Accessories

Detectors and Detector Modules, Multichannel Detector Heads, Step Motor Controllers, Detector/Shutter Controllers, Preamplifiers, ps Diode Lasers. Also available: SPC-134, SPC-6, -7, -8 time-correlated single photon counting modules, gated photon counters and multiscalers. Please download or call for individual data sheets and manuals.

Please visit our web site to download the manual, the device software and application notes.



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